

ABSTRACT

AIM :

To analyse the effect of benzalkonium chloride surfactant-sodium hypochlorite combination in the elimination of *E.faecalis* from the root canal during retreatment.

OBJECTIVES:

The objectives of this in vitro study where as follows

1. To assess the effect of sodium hypochlorite at a higher concentration (6%) in removing bacteria *E.faecalis* from the root canal during retreatment procedure, by evaluating the reduction in the number of colonies present (CFU/mL) using the paper sampling method and colony counter .
2. To assess the efficacy of sodium hypochlorite (6%) when used with a surface active agent benzalkonium chloride (0.008%) in eliminating the bacteria *E.faecalis* completely from the root canal during retreatment procedure, by evaluating the number of colonies present (CFU/mL) using the colony counter with paper sampling method.

METHODOLOGY:

Sixty four extracted human lower first premolars with single canal were prepared with rotary instrumentation and obturated. Teeth were divided into 4 groups. Three experimental groups are inoculated with *E.faecalis* and cultured for 21 days: Positive Control group, No irrigation; NaOCl group; irrigated with 5ml 6% NaOCl; NaOCl/BAK, irrigated with 5ml

0.008%BAK/ 6% NaOCl. Negative Control group received medium only and no inoculate. Paper point sampling of the canals were obtained before irrigation for all 4 groups (A,B,C1,D1) and for 2 groups after irrigation (C2, D2) to determine the remaining colony forming units.

RESULTS:

Result of this present study showed that the use of 6% NaOCl showed reduction in the number of CFU/mL from 3.27×10^4 to 0.89×10^2 ($P=.000$). The use of surfactant 0.008% BAK added to the irrigant 6%NaOCl reduced the colony count from 3.33×10^4 CFU/mL to 0.5×10^1 CFU/mL ($P=0.001$) during retreatment procedure.

CONCLUSION:

1. NaOCl (6%) does not eliminate the bacteria *E.faecalis* completely from the dentinal walls of the root canal during retreatment.
2. Irrigation of the root canal with 0.008% BAK followed by 6% NaOCl was effective in completely removing all the bacteria (*E.faecalis*) from the root canal walls during retreatment.

Keyword: Enterococcus Faecalis, Sodium hypochlorite, Benzalkonium chloride, Paper point samples.